

Appendix: Claims On Appeal

1. (Three Times Amended) An isolated or purified nucleic acid segment comprising a nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein, wherein the nucleic acid sequence is a nucleic acid sequence at least about 80% identical to SEQ ID NO:8 that hybridizes under stringent conditions to SEQ ID NO:8 or the complement thereof, and encodes a protein at least about 80% identical to SEQ ID NO:9, and has 3-keto-acyl-CoA reductase activity higher for D-isomers of C6 carbon chains than for C4 carbon chains.

2. 3. (Amended) A recombinant vector comprising in the 5' to 3' direction:

- a) a promoter that directs transcription of a structural nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein;
- b) a structural nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein; wherein the structural nucleic acid sequence is a nucleic acid sequence at least about 80% identical to SEQ ID NO:8; that hybridizes under stringent conditions to SEQ ID NO:8 or the complement thereof; and encodes a protein at least about 80% identical to SEQ ID NO:9 and that has 3-keto-acyl-CoA reductase activity higher for D-isomers of C6 carbon chains than for C4 carbon chains; and
- c) a 3' transcription terminator.

3. 4. (Amended) A recombinant cell comprising a nucleic acid segment encoding a 3-keto-acyl-CoA reductase protein, wherein the nucleic acid segment is a nucleic acid sequence at least

about 80% identical to SEQ ID NO:8; that hybridizes under stringent conditions to SEQ ID NO:8 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:9 and that has 3-keto-acyl-CoA reductase activity higher for for D-isomers of C6 carbon chains than for C4 carbon chains.

4. (Amended) A genetically transformed plant cell comprising in the 5' to 3' direction:

- a) a promoter that directs transcription of a structural nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein;
- b) a structural nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein; wherein the structural nucleic acid sequence is a nucleic acid sequence at least about 80% identical to SEQ ID NO:8 that hybridizes under stringent conditions to SEQ ID NO:8 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:9 and that has 3-keto-acyl-CoA reductase activity higher for for D-isomers of C6 carbon chains than for C4 carbon chains;

- c) a 3' transcription terminator; and
- d) a 3' polyadenylation signal sequence that directs the addition of polyadenylate nucleotides to the 3' end of RNA transcribed from the structural nucleic acid sequence.

5. (Amended) A genetically transformed plant comprising in the 5' to 3' direction:

- a) a promoter that directs transcription of a structural nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein;
- b) a structural nucleic acid sequence encoding a 3-keto-acyl-CoA reductase protein; wherein the structural nucleic acid sequence is a nucleic acid sequence at least about 80%

identical to SEQ ID NO:8 that hybridizes under stringent conditions to SEQ ID NO:8 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:9 and that has 3-keto-acyl-CoA reductase activity higher for D-isomers of C6 carbon chains than for C4 carbon chains;

- c) a 3' transcription terminator; and
- d) a 3' polyadenylation signal sequence that directs the addition of polyadenylate nucleotides to the 3' end of RNA transcribed from the structural nucleic acid sequence.

6/9. (Twice Amended) An isolated or purified nucleic acid segment comprising a nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein, wherein the nucleic acid segment is a nucleic acid sequence at least about 80% identical to SEQ ID NO:10 that hybridizes under stringent conditions to SEQ ID NO:10 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:11 and that has polyhydroxyalkanoate synthase activity.

7/11. (Amended) A recombinant vector comprising in the 5' to 3' direction:

- a) a promoter that directs transcription of a structural nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein;
- b) a structural nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein; wherein the structural nucleic acid sequence is a nucleic acid sequence at least about 80% identical to SEQ ID NO:10 that hybridizes under stringent conditions to SEQ ID NO:10 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:11 and that has polyhydroxyalkanoate synthase activity; and

- c) a 3' transcription terminator.

8 12. (Amended) A recombinant host cell comprising a nucleic acid segment encoding a polyhydroxyalkanoate synthase protein, wherein the nucleic acid segment is a nucleic acid sequence at least about 80% identical to SEQ ID NO:10 that hybridizes under stringent conditions to SEQ ID NO:10 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:11 and that has polyhydroxyalkanoate synthase activity.

9 13. (Amended) A genetically transformed plant cell comprising in the 5' to 3' direction:
a) a promoter that directs transcription of a structural nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein;

b) a structural nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein; wherein the structural nucleic acid sequence is a nucleic acid sequence at least about 80% identical to SEQ ID NO:10 that hybridizes under stringent conditions to SEQ ID NO:10 or the complement thereof; and

encodes a protein at least about 80% identical to SEQ ID NO:11 and that has polyhydroxyalkanoate synthase activity;

c) a 3' transcription terminator; and
d) a 3' polyadenylation signal sequence that directs the addition of polyadenylate nucleotides to the 3' end of RNA transcribed from the structural nucleic acid sequence.

~~10~~ ~~14~~. (Amended) A genetically transformed plant comprising in the 5' to 3' direction:

- a) a promoter that directs transcription of a structural nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein;
- b) a structural nucleic acid sequence encoding a polyhydroxyalkanoate synthase protein; wherein the structural nucleic acid sequence is a nucleic acid sequence at least about 80% identical to SEQ ID NO:10 that hybridizes under stringent conditions to SEQ ID NO:10 or the complement thereof; and
encodes a protein at least about 80% identical to SEQ ID NO:11 and that has polyhydroxyalkanoate synthase activity;
- c) a 3' transcription terminator; and
- d) a 3' polyadenylation signal sequence that directs the addition of polyadenylate nucleotides to the 3' end of RNA transcribed from the structural nucleic acid sequence.

~~11~~ ~~24~~. (Amended) The nucleic acid segment, vector, or cell of claims ~~1~~, ~~4~~, ~~5~~, or ~~6~~,^{3 4 5}
wherein the nucleic acid sequence is SEQ ID NO:8.

~~12~~ ~~25~~. The nucleic acid segment, vector or cell of claims ~~9~~, ~~11~~, ~~12~~, ~~13~~, or ~~14~~^{6, 7, 8, 9 10} wherein the nucleic acid sequence is SEQ ID NO:10.